

**We claim:**

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1. In a computing system comprising of plurality of clients and boot servers of a particular type, and single DHCP/PXE server, a method in said DHCP/PXE server for allocating a boot server to each requesting client characterized in that the least loaded boot server is prioritized for service

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by:

- maintaining a boot Server Allocation Table (SAT) containing the existing client load count for each boot server,
- maintaining a Client Allocation Table (CAT) associating each client IP address with the corresponding boot server IP address,
- prioritizing the boot servers by sorting said SAT in order of increasing load count whenever it is updated, and
- providing the IP addresses of the boot servers in the sequence of their listing in said SAT for access whenever a client requests the DHCP.

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2. A method as claimed in claim 1 wherein said SAT is updated to increment a particular boot server load count whenever that boot server sends an acknowledge (ACK) to a requesting client.

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3. A method as claimed in claim 1 wherein said CAT is updated to include an entry associating the client with a particular boot server IP address whenever a boot server sends an acknowledge ACK to the client.

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4. A method as claimed in claim 1 wherein said CAT is updated to remove an entry corresponding to a particular client whenever the DHCP refreshes it's IP addresses pool and discovers that said client is not available.

5. A method as claimed in claim 1 wherein said SAT is updated to decrement the load count on a particular boot server using the association between the client and server given in the CAT whenever the DHCP refreshes it's IP addresses pool and discovers that said client is not available.

6. A method as claimed in claim 1 wherein the boot Server Allocation Table (SAT) contains the boot server IP address and the count of the number of times the server is used for booting up on the network

7. In a computing system comprising of plurality of clients and boot servers of a particular type, and single DHCP/PXE server, a method in said DHCP/PXE server for allocating a boot server to each requesting client characterized in that the least loaded boot server is prioritized for service by:

- i) initialization of the DHCP server to obtain a boot server IP address (BSIP), Server Allocation table (SAT) and Client Allocation Table (CAT);
- ii) incrementing the load count on SAT and updating CAT with the entry of a new client and IP address when DHCP server receives an ACK packet from a boot server servicing a client;
- iii) updating CAT and comparing it with the previous image of CAT (CATP) to identify changes in CAT, if no ACK packet is received, decrementing the load count on SAT of the boot server and replacing the previous image of CAT (CATP) with current image of CAT to help in identifying changes in the network status in the next cycle
- iv) establishing priority of allocation of boot servers by sorting load count on SAT in an increasing order;

- v) extracting prioritized IP address list of boot servers from SAT and posting to DHCP option , PXE boot server tag, and
- vi) repeating the cycle from step (ii) onwards again and again

5 8. A computing system comprising of plurality of clients and boot servers of a particular type, and single DHCP/PXE server, a system in said DHCP/PXE server for allocating a boot server to each requesting client characterized in that the least loaded boot server is prioritized for service by:

- a boot Server Allocation Table (SAT) means containing the existing client load count for each boot server,
- a Client Allocation Table (CAT) means for associating each client IP address with the corresponding boot server IP address,
- means for prioritizing the boot servers by sorting said SAT means in order of increasing load count whenever it is updated, and
- means for providing the IP addresses of the boot servers in the sequence of their listing in said SAT means for access whenever a client requests the DHCP.

20 9. A system as claimed in claim 8 wherein said SAT means is updated to increment a particular boot server load count whenever that boot server sends an acknowledge (ACK) to a requesting client.

25 10. A system as claimed in claim 8 wherein said CAT means is updated to include an entry associating the client with a particular boot server IP address whenever a boot server sends an acknowledge ACK to the client.

11. A system as claimed in claim 8 wherein said CAT means is updated to remove an entry corresponding to a particular client whenever the DHCP

refreshes it's IP addresses pool and discovers that said client is not available.

5 12. A system as claimed in claim 8 wherein said SAT means is updated to decrement the load count on a particular boot server using the association between the client and server given in the CAT whenever the DHCP refreshes it's IP addresses pool and discovers that said client is not available.

10 13. A system as claimed in claim 8 wherein the boot Server Allocation Table (SAT) means contains the boot server IP address and the count of the number of times the server is used for booting up on the network.

15 14. A computer program product comprising a computer storage medium having computer readable code residing on a DHCP/PXE server for allocation of least loaded boot server to PXE client.

20 15. A computer readable program product as claimed in claim 14 further comprising computer readable code means configured to maintain a boot Server Allocation Table (SAT) containing the existing client load count for each boot server including updating said SAT to increment a particular boot server load count whenever that boot server sends an acknowledge (ACK) to a requesting client

25 16. A computer readable program product as claimed in claim 15 further comprising computer readable code means configured to maintain a Client Allocation Table (CAT) associating each client IP address with the corresponding boot server IP address including updating said CAT to include an entry associating the client with a particular boot server IP

address whenever a boot server sends an acknowledge (ACK) to the client.

5 17. A computer readable program product as claimed in claim 16 wherein said computer readable code means also updates said CAT to remove an entry corresponding to a particular client whenever the DHCP refreshes its IP addresses pool and discovers that said client is not available.

10 18. A computer readable program product as claimed in claim 17 further comprising computer readable code means configured for providing the IP addresses of the boot servers in the sequence of their listing in said SAT for excess whenever a client requests the DHCP/PXE server.

15 19. A computer readable program product as claimed in claim 18 further comprising computer readable code means configured to prioritize the boot servers by sorting said SAT in order of increasing load count whenever it is updated including updating said SAT to decrement the load count on a particular boot server using the association between the client and server given in the CAT whenever the DHCP refreshes its IP  
20 addresses pool and discovers that said client is not available.